

**Canada.**—**Montreal:** this city was visited by a flood during the 18th, 19th, and 20th. Business was at a complete standstill. Hundreds of wholesale and retail houses were closed, being inaccessible except by boats. The suffering of the residents in the flooded part of the city was intense. In Griffintown thousands of persons were forced to the upper part of their houses by the water. Twenty-four streets were reported covered with water to the depth of five feet. The flood showed signs of abatement on the 20th.

#### HIGH TIDES.

Eastport, Maine, 6th.  
Block Island, Rhode Island, 6th, 20th.  
New Haven, Connecticut, 6th.  
Sandy Hook, New Jersey, 6th.  
Atlantic City, New Jersey, 6th.

#### LOW TIDES.

Indianola, Texas, 1st, 5th to 11th, 16th, 17th, 19th to 23d, 30th.

#### VERIFICATIONS.

##### INDICATIONS.

The detailed comparison of the tri-daily indications for districts east of the Rocky Mountains during April, 1886, with the telegraphic reports for the succeeding thirty-two hours, shows the general average percentage of verifications to be 80.19 per cent. The percentages for the four elements are: Weather, 83.02; direction of the wind, 82.39; temperature, 75.31; barometer, 76.39 per cent. By geographical districts, they are: For New England, 68.57; middle Atlantic states, 79.53; south Atlantic states, 85.58; eastern Gulf states, 87.68; western Gulf states, 84.28; lower lake region, 75.00; upper lake region, 79.49; Ohio Valley and Tennessee, 82.29; upper Mississippi valley, 80.79; Missouri Valley, 78.87. There were eight omissions to predict, out of 2,736, or 0.29 per cent. Of the 2,728 predictions that have been made, eighty-five, or 3.12 per cent., are considered to have entirely failed; one hundred and seventy-seven, or 6.49 per cent., were one-fourth verified; four hundred and twenty-five, or 15.57 per cent., were one-half verified; four hundred and forty-one, or 16.17 per cent., were three-fourths verified; 1,600, or 58.65 per cent., were fully verified, so far as can be ascertained from the tri-daily reports.

The percentages of verifications of special predictions for certain localities are, as follows:

Omaha, Nebraska (twenty-six days), 79.81; Arkansas (twenty-six days), 86.54; Baltimore, Maryland (twenty-six days), 71.64; Washington City, 75.41; Portland, Maine, 70.83; Boston, Massachusetts, 68.75; New Haven, Connecticut, 71.67; Albany, New York, 72.50; Pittsburg, Pennsylvania, 74.17; Cincinnati, Ohio, 74.17; Louisville, Kentucky, 70.00; Indianapolis, Indiana, 65.83; Columbus, Ohio, 62.07; Oswego, New York, 69.58; Rochester, New York, 72.50; Buffalo, New York, 69.17; Erie, Pennsylvania, 69.17; Cleveland, Ohio, 65.00; Davenport, Iowa, 72.91; Toledo, Ohio, 74.58; Sandusky, Ohio, 61.67; Milwaukee, Wisconsin, 73.73; Chicago, Illinois, 76.25; Lynchburg, Virginia, 79.17; Georgia, 84.58; northern Florida, 89.17; Shreveport, Louisiana, 67.50; Tennessee, 74.58; Memphis, Tennessee, 80.00; Saint Louis, Missouri, 74.17; Cairo, Illinois, 81.67; western Missouri, 79.17; Iowa, 81.67; Saint Paul, Minnesota, 85.00; Nebraska (seventeen days), 77.94; Palestine, Texas (twelve days), 75.00.

#### CAUTIONARY SIGNALS.

During April, 1886, one hundred and thirty-six cautionary signals were ordered. Of these, seventy-six, or 55.88 per cent., were justified by winds of twenty-five miles or more per hour at or within one hundred miles of the station. Sixteen cautionary off-shore signals were ordered, of which number, eight, or 50.00 per cent., were fully justified, both as to direction and velocity; sixteen, or 100 per cent., were justified as to direction; and eight, or 50.00 per cent., were justified as to velocity. One hundred and fifty-two signals of all kinds

were ordered, eighty-four, or 55.26 per cent., being fully justified. These do not include signals ordered at display stations where the velocity of the wind is only estimated. Of the above cautionary off-shore signals, twelve were changed from cautionary. Two signals were ordered late. In fifty-nine cases, winds of twenty-five miles or more per hour were reported for which no signals were ordered.

#### COLD-WAVE SIGNALS.

No cold-wave signals were ordered during April.

#### RAILWAY WEATHER SIGNALS.

Prof. P. H. Mell, jr., director of the "Alabama Weather Service," in the report for April, 1886, states:

The verifications of predictions for the whole area was 93 per cent. for temperature, and 90 per cent. for weather.

The following corporations comprise this system: South and North; Montgomery and Mobile; Mobile and Girard; Georgia Pacific; East Tennessee, Virginia and Georgia system in Alabama; Memphis and Charleston; Columbus Western; Atlanta and West Point of Georgia; Northeastern of Georgia; Western and Atlantic; East Tennessee, Virginia and Georgia system in Georgia; Montgomery and Eufaula; Pensacola and Selma; Pensacola and Atlantic; and the cities of Milledgeville, Georgia, and Talladega, Alabama.

#### ATMOSPHERIC ELECTRICITY.

##### AURORAS.

Auroral displays were not very numerous during April, 1886. The most brilliant and extensively observed display was that of the 20th; it was generally observed in the northern districts from Montana eastward to Maine.

The following notes refer to the displays reported during the month:

Prairie du Chien, Crawford county, Wisconsin: a white auroral arch above a dark segment was observed during the evening of the 1st.

Fort Yates, Dakota: an aurora was observed from 9.38 to 10.50 p. m. of the 1st. The auroral light consisted of a horizontal bar of white light extending from northwest to southeast. An aurora was also observed on the 20th, from 10.30 to 11.20 p. m.

Bismarck, Dakota: an aurora was observed from 9.45 to 11.20 p. m. on the 1st, having two separate pillars of light 5° wide and 30° altitude. The light was a pale yellow color, the maximum brilliancy occurring at 10.15 p. m.

Escanaba, Michigan: faint aurora observed at 10 p. m. on the 4th, and continued until after midnight. On the 12th a faint orange-colored arch 20° above the horizon was observed about 9 p. m.

Saint Vincent, Minnesota: an aurora was observed at 9.35 p. m. of the 12th, consisting of a pale whitish light shooting up to a height of 20°.

Gardiner, Kennebec county, Maine: on the 14th a brilliant aurora was observed at 10.45 p. m., with beams flashing up towards the zenith. At 2.30 a. m. the aurora was still visible but fainter on account of the moon which was then shining brightly.

Cambridge, Massachusetts: a faint auroral arch was observed from 8.30 to 9.45 p. m. of the 14th, which increased in brightness until about 11 p. m., when it began to fade away. An aurora was also seen at 10 p. m. of the 30th. This aurora was low and irregular with some appearance of streamers, with dark sky below; later a faint arch appeared. The display ended at 11 p. m.

Mackinaw City, Michigan: an aurora of 15° altitude and 30° azimuth was seen on the 20th during the evening. It was so faint that it could not be seen after the moonlight began.

Poplar River, Montana: a pale yellow aurora was seen at 10.30 p. m. of the 20th. Numerous beams, not well defined, rose to the altitude of 30°. The beams were interspersed with dark rays resembling dense smoke. The display ended at 11.30 p. m.

Fort Assinaboine, Montana: a bright auroral display was first seen at 10 p. m. of the 20th, consisting of an arch of pale white color above a dark segment. The arch was about 90° azimuth and 17° to 20° altitude. At midnight it had almost